

WHAT IS CLAIMED IS

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1. A method of displaying images that resemble each other, comprising the steps of:

extracting image features from images;

dividing a feature space of the image features into sub-spaces having a hierarchical structure;

generating a tree structure having the sub-spaces as nodes thereof;

dividing a display space into divided spaces reflecting the tree structure; and

assigning the images to the corresponding divided spaces so as to display the images arranged in the display space.

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2. The method as claimed in claim 1, wherein said step of dividing a feature space includes a step of generating clusters having a circle shape by applying a clustering method recursively.

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3. The method as claimed in claim 2, wherein said clustering method includes the steps of:

obtaining a distance between an image feature and one of the clusters closest to the image feature  
5 with respect to each one of the image features;

selecting an image feature successively from the image features in an ascending order of the distance;

obtaining an increase in a radius of each  
10 cluster such that said each cluster contains the selected image feature; and

making the selected image feature belong to a cluster that has the smallest radius increase.

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4. The method as claimed in claim 1, wherein said step of dividing the display space includes the  
20 steps of:

a) dividing the display space in a direction of a selected dimension, selected for a given node of the tree structure, into divided spaces as many as there are nodes immediately under the given node in the tree  
25 structure; and

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6. The method as claimed in claim 4, wherein  
said step a) divides the display space such that the  
divided spaces corresponding to the respective nodes  
have sizes proportional to numbers of image features  
20 belonging to the respective nodes.

7. The method as claimed in claim 4, wherein

said step a) divides the display space such that the divided spaces corresponding to the respective nodes have sizes proportional to sizes of the sub-spaces corresponding to the respective nodes.

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8. The method as claimed in claim 4, further comprising a step of adjusting sizes of the divided spaces such that the sizes of the divided spaces corresponding to the respective nodes reflect numbers of image features belonging to the respective nodes and sizes of the sub-spaces corresponding to the respective nodes.

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9. A computer-readable medium having a program embodied therein for causing a computer to create a display screen image for displaying images that resemble each other, said program comprising:

a program code for extracting image features from images;

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a program code for dividing a feature space of  
the image features into sub-spaces having a hierarchical  
structure;

5 a program code for generating a tree structure  
having the sub-spaces as nodes thereof;

a program code for dividing a display space  
into divided spaces reflecting the tree structure; and

a program code for assigning the images to the  
corresponding divided spaces so as to display the images  
10 arranged in the display space.

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15 10. The computer-readable medium as claimed in  
claim 9, wherein said program code for dividing a  
feature space includes a program code for generating  
clusters having a circle shape by applying a clustering  
method recursively.

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11. The computer-readable medium as claimed in  
25 claim 10, wherein said clustering method includes the

obtaining a distance between an image feature and one of the clusters closest to the image feature with respect to each one of the image features;

obtaining an increase in a radius of each cluster such that said each cluster contains the selected image feature; and

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a repeating program code for causing said

dividing program code to repeat processing thereof by  
changing the selected dimension as a new node is  
selected as the given node from a next node level.

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13. The computer-readable medium as claimed in  
claim 12, wherein said dividing program code further  
10 provides extra spaces between the divided spaces such  
that the extra spaces represent gaps between the nodes.

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14. The computer-readable medium as claimed in  
claim 12, wherein said dividing program code divides the  
display space such that the divided spaces corresponding  
to the respective nodes have sizes proportional to  
20 numbers of image features belonging to the respective  
nodes.

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15. The computer-readable medium as claimed in claim 12, wherein said dividing program code divides the display space such that the divided spaces corresponding to the respective nodes have sizes proportional to sizes of the sub-spaces corresponding to the respective nodes.

10 16. The computer-readable medium as claimed in claim 12, further comprising a program code for adjusting sizes of the divided spaces such that the sizes of the divided spaces corresponding to the respective nodes reflect numbers of image features  
15 belonging to the respective nodes and sizes of the sub-spaces corresponding to the respective nodes.

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17. A device for displaying images that resemble each other, comprising:

a memory which stores therein a program; and

a CPU which executes the program, wherein said

25 CPU executing the program performs the steps of:

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extracting image features from images;  
dividing a feature space of the image features  
into sub-spaces having a hierarchical structure;  
generating a tree structure having the sub-  
5 spaces as nodes thereof;  
dividing a display space into divided spaces  
reflecting the tree structure; and  
assigning the images to the corresponding  
divided spaces so as to display the images arranged in  
10 the display space.

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15 18. A computer-readable medium having a  
program embodied therein for causing a computer to  
create a display screen image for displaying items that  
resemble each other, said program comprising:  
a program code for extracting item features  
20 from items;  
a program code for dividing a feature space of  
the item features into sub-spaces having a hierarchical  
structure;  
a program code for generating a tree structure  
25 having the sub-spaces as nodes thereof;

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a program code for dividing a display space  
into divided spaces reflecting the tree structure; and

a program code for assigning the items to the  
corresponding divided spaces so as to display the items

5 arranged in the display space.

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